

What is claimed is:

1. An electrochemical sensor, comprising:  
a substrate having a surface;  
a first electrode deposited on said surface;  
a second electrode spaced apart from said first electrode and deposited  
5 on said surface for detecting a gas;  
an electrolyte in electrical contact with said first electrode and said second  
electrode for carrying a flow of current; and  
said second electrode having a porosity of less than 5%, a pore size less  
than .12 micrometers at said pore size's greatest measurement, and a thickness  
10 less than 1 micrometer for controlling flooding.
2. The electrochemical sensor according to claim 1, wherein said porosity is  
less than 2%.
3. The electrochemical sensor according to claim 1, wherein said pore size  
is less than .05 micrometers at said pore size's greatest measurement.
4. The electrochemical sensor according to claim 1, wherein said thickness  
is less than .2 micrometers for deterring flooding.
5. The electrochemical sensor according to claim 1, wherein said porosity is  
less than 1%.
6. The electrochemical sensor according to claim 1, wherein said pore size is  
less than .01 micrometers at said pore size's greatest measurement.

7. The electrochemical sensor according to claim 1, wherein said thickness is less than .1 micrometers for deterring flooding.
8. The electrochemical sensor according to claim 1, wherein said second electrode has negligible porosity.
9. The electrochemical sensor according to claim 1, wherein said second electrode is nonporous.
10. The electrochemical sensor according to claim 1, wherein said first electrode is sputter coated.
11. The electrochemical sensor according to claim 1, wherein said first electrode is vapor deposited.
12. The electrochemical sensor according to claim 1, wherein said second electrode is sputter coated.
13. The electrochemical sensor according to claim 1, wherein said second electrode is vapor deposited.
14. The electrochemical sensor according to claim 1, further including an acidic solution for hydrating said electrolyte.
15. The electrochemical sensor according to claim 1, further including a reservoir for containing a solution to hydrate said electrolyte.
16. The electrochemical sensor according to claim 1, wherein said substrate has a pore less than .12 micrometers at its greatest measurement.

17. The electrochemical sensor according to claim 1, wherein said substrate has a pore less than .05 micrometers at its greatest measurement.

18. The electrochemical sensor according to claim 1, wherein said substrate has a pore less than .01 micrometers at its greatest measurement.

19. The electrochemical sensor according to claim 1, wherein said surface of said substrate has negligible porosity.

20. The electrochemical sensor according to claim 1, wherein said surface of said substrate is generally flat.

21. The electrochemical sensor according to claim 1, wherein said surface of said substrate has a porosity of less than 5%.

22. The electrochemical sensor according to claim 1, wherein said surface of said substrate has a porosity of less than 2%

23. The electrochemical sensor according to claim 1, wherein said surface of said substrate has a porosity of less than 1%.

24. An electrochemical sensor operational below 0°C, comprising:

a substrate having a surface;

a first electrode deposited on said;

a second electrode spaced apart from said first electrode and deposited

5 on said surface for detecting a gas;

an electrolyte in electrical contact with said first electrode and said second electrode for carrying a flow of current; and

an acidic solution for hydrating said electrolyte.

25. The electrochemical sensor according to claim24, wherein said acidic solution is 30% acidic.

26. The electrochemical sensor according to claim24, wherein said acidic solution is 50% acidic.

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